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EAS 16 (2009) (English): Plantation (mill) white sugar - Specification



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EAST AFRICAN STANDARD

Plantation (mill) white sugar — Specification

EAST AFRICAN COMMUNITY

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Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

In order to achieve this objective, the Community established an East African Standards Committee mandated to develop and issue East African Standards.

The Committee is composed of representatives of the National Standards Bodies and other regulatory bodies in the Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

This draft is the second edition and once approved will cancel and replace the first edition, EAS 16:2000, which is being technically revised.

Plantation (mill) white sugar — Specification

1 Scope

This standard specifies the requirements, methods of sampling and testing for plantation or mill white sugar intended for human consumption.

2 Normative references

EAS 38, *Labelling of pre-packaged foods— Specification*

EAS 39, *Hygiene in the food and drink manufacturing industry — Code of practice.*

EAS 217-2, *Methods for the microbiological examination of foods — Part 2: General Guidance for the enumeration of micro-organisms-colony count Technique at 30 °C*

EAS 217-6, *Methods for microbiological examination of foods — Part 6: Examination for salmonella spp*

EAS 217-8, *Methods for the microbiological examination of foods — Part 8: Enumeration of yeast and moulds in foods*

ICUMSA Method GS 1/2/3/9-1, *The Determination of the Polarisation of Raw Sugar by Polarimetry*

ICUMSA Method GS 1/3/4/7/8-13, *The Determination of Conductivity Ash in Raw Sugar, Brown Sugar, Juice, Syrup and Molasses*

ICUMSA Method GS 2/1/3-27, *The Determination of Lead in Sugar Products by a Colorimetric Method*

ICUMSA Method GS 2/1/3/9-15, *The Determination of Sugar Moisture by Loss on Drying*

ICUMSA Method GS 2/3-24, *The Determination of Lead in Sugars and Syrups by a GFAAS Method*

ICUMSA Method GS 2/3-29, *The Determination of Copper in Refined Sugar Products by a Colorimetric Method*

ICUMSA GS 2/3-35, *The Determination of Sulphite in Brown Sugars*

ICUMSA Method GS 2/3/9-5, *The Determination of Reducing Sugars in Purified Sugars by the Knight and Allen EDTA Method*

ICUMSA Method GS 2/3/9-19, *The Determination of Insoluble Matter in White Sugar by Membrane Filtration*

ICUMSA Method GS 2/3/9-25, *The Determination of Arsenic in Refined Sugar Products by a Colorimetric Method*

ICUMSA Method GS 2/3/9-25 (2007), *Arsenic in Refined Sugar Products by a Colorimetric Method*

ICUMSA Method GS 2/9-6, *The Determination of Reducing Sugars in White Sugar and Plantation White Sugar by the Modified Ofner Titrimetric Method*

ICUMSA Method GS 3/4/7/8-11, *The Determination of Sulphated Ash in Brown Sugar, Juice, Syrup and Molasses*

ICUMSA Method GS 9/1/2/3-8, *The Determination of Sugar Solution Colour at pH 7.0 by the MOPS Method*

ISO 7251, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

3 Terms and definitions

For the purposes of this standard, the following terms and definitions shall apply.

3.1

plantation white sugar

mill white sugar

white sugar commonly manufactured by the vacuum-pan-process from sugar cane

3.2

ICUMSA unit

international unit developed by International Commission for Universal Methods of Sugar Analysis (ICUMSA) for expressing the purity of sugar and is directly related to the colour of sugar

3.3

polarisation

estimate of the sucrose content of sugar expressed as degrees of polarization

3.4

lot

collection of packages of the same size, type and style which have been manufactured and packaged under essentially the same conditions

4 Requirements

4.1 General requirements

Plantation white sugar shall be

- a) in the form of uniform crystals;
- b) free from dirt, foreign and extraneous matter; and
- c) free from fermented, musty or undesirable odours.

4.2 Compositional requirements

Plantation white sugar shall conform to the compositional in Table 1.

Table 1 — Composition requirements for plantation white sugar

S No	Characteristic	Requirement/limits	Methods of test
i.	Polarisation, °Z, min.	99.5	ICUMSA Method GS 1/2/3/9-1,
ii.	Invert sugar content, % m/m, max.	0.1	ICUMSA Method GS 2/3/9-5, ICUMSA Method GS 2/9-6,
iii.	Conductivity ash, % m/m, max.	0.1	ICUMSA Method GS 3/4/7/8 11ICUMSA Method GS 1/3/4/7/8-13
iv.	Moisture content (loss on drying for 3 h at 105 °C ± 2 °C), max.	0.1	ICUMSA Method GS 2/1/3/9-15
v.	Colour, in ICUMSA units at 420 nm, max	400	ICUMSA Method GS 9/1/2/3-8
vi	Sulphur dioxide, mg/kg, max.	20	ICUMSA GS 2/3-35
Vii	Water insoluble matter, mg/kg, max.	150	ICUMSA Method GS 2/3/9-19

5 Food additives

Plantation (mill) white sugar may contain only those food additives permitted by Codex Alimentarius for this commodity.

6 Metal contaminants

6.1 Metals

The maximum permitted levels for metal contaminants are set out in Table 2.

Table 2 — Maximum levels for metal contaminants

S No	Parameter	Maximum limit	Methods of test
i.	Arsenic (As), mg/kg, max.	1	ICUMSA Method GS 2/3/9-25
ii.	Lead (Pb), mg/kg, max .	0.5	ICUMSA Method GS 2/3-24 ICUMSA Method GS 2/1/3-27
iii	Copper (Cu), mg/kg, max	2	ICUMSA Method GS 2/3-29

6.2 Pesticide residues

Plantation (mill) white sugar shall conform to the maximum residue limits established by the Codex Alimentarius Commission for this commodity.

7 Hygiene

7.1 General requirements

Plantation (mill) white sugar shall be prepared and handled in accordance with the requirements of EAS 39.

7.2 Specific requirements

The product shall conform to the microbiological limits in Table 3.

Table 3 — Microbiological limits for plantation (mill) white sugar

Microbiological parameter	Limit	Method of test
Total Plate Count (mesophylic), CFU/10g , max	10 ³	EAS 217-2:
Yeast and moulds, CFU/10 g, max	50	EAS 217-8
<i>Escherichia coli</i> , CFU,/g	<1	ISO 7251
Salmonella, per 25 g	Absent	EAS 217-6

8 Packaging

Plantation white sugar shall be packaged in food grade materials that ensure product safety and integrity.

NOTE Packaging materials may be required to meet different regulations in the different destination countries.

The package fill shall conform to the requirements of the legal metrology of the Partner States.

9 Labelling

In addition to the requirements of EAS 38, the following specific provisions shall apply:

- a) the name of the product as “**plantation white sugar**” or “**mill white sugar**”;
- b) the net contents shall be declared by weight in the metric units ('Systeme International');
- c) the name, address and physical location of the manufacturer and/or the packer, distributor, importer, exporter or vendor of the product shall be declared; and
- d) the country of origin of the product shall be declared.

10 Method of sampling

10.1 General requirements for sampling

In drawing, preparing, storing and handling of samples, the following precautions and directions shall be observed.

- a) Samples shall be taken in a protected place not exposed to damp air, dust or soot.
- b) The sampling instruments shall be clean and dry when used.
- c) When sampling for microbiological purposes, the sampling instruments and containers for samples shall be sterilized preferably by dry heat at 170 °C for 1 h before use.
- d) Precautions shall be taken to protect the samples, the material being sampled, the sampling instruments and the containers for samples from adventitious contamination.
- e) The samples shall be placed in clean, dry, and moisture-proof containers.

- f) The sample containers shall be sealed air-tight after filling and marked with name of material, date of sampling, name of the manufacturer, name of the person sampling and such other particulars of the consignments.
- g) Samples shall be protected from light as far as practicable and shall be stored in a cool, dry place.

10.2 Scale of sampling

10.2.1 All the packages of the same size, type and style which have been manufactured and packaged under essentially the same conditions in a single consignment shall constitute a lot.. Samples shall be tested separately for each lot for ascertaining the conformity of the sugar.

10.2.2 The number of bags to be selected (n) from the lot shall depend on the size (N) of the lot and shall be in accordance with the formula:

$$n\sqrt{N}$$

These bags shall be selected at random from the lot; to ensure the randomness of selection a random number table, as agreed to between the purchaser and the supplier shall be used. In case such a table is not available, the following procedure shall be used:

Starting from any bag, count them as 1,2,3,..... up to r and so on in one order, where r is equal to the integral part of N/n , N being the total number of bags in the lot and n the number of bags to be selected. Every r^{th} bag thus counted shall be separated until the requisite number of bags is obtained from the lot to give samples for test.

In case of bags stacked in a pyramidal shape, approximately equal number of bags shall be selected from all exposed sides of the lot, so as to give the required number of sample bags.

10.3 Preparation of sample

10.3.1 Procedure

From the top, middle and bottom portions of each of the selected bags (see 10.2), approximately equal quantity of sugar shall be taken with the help of a suitable sampling instrument. The sample collected from each of the bags shall be thoroughly mixed so as to give a composite sample of 600 g. The composite sample thus prepared shall be divided approximately into three equal parts; one for the purchaser, one for the supplier, and the third for the referee and sealed air tight with particulars as given in 10.1.(f).

10.3.2 Number of tests

The composite sample prepared as under 10.3.1 shall be tested for the characteristics as prescribed in Table 1.

10.3.3 Criteria for conformity

The lot shall be declared as conforming to this specification, when the test results on various characteristics obtained on the composite sample satisfy the corresponding requirements.

11 Methods of test — Determination of pesticide residues

The pesticide residues shall be determined according to AOAC methods of analysis for pesticides. (970.52, 985.22, and 970.53 of 1990). .